

once when it finally attempted to move down the intestine. It was rusted and very tightly impacted. The mucous membrane of the ileum in contact with it had been destroyed by ulceration, and perforation would have soon occurred. The fact that it lodged end on and had an unusually large lumen prevented symptoms of obstruction.

STAB-WOUND OF HEART (RIGHT AURICLE); SUTURE;  
RECOVERY.

DR. CHARLES H. PECK presented a negro woman, 24 years of age, who was brought to the Roosevelt Hospital in the ambulance about 11 P.M. on the evening of June 14, 1908, with the history that she had been stabbed three times in the chest with a pocket knife about half an hour earlier. One wound was over the right breast; one over the left breast, and one over the junction of the left third costal cartilage with the sternum. The heart sounds could not be heard, and there was no pulse at the wrist, but a weak paradoxical pulse could be felt high in the brachial artery. Respiration was shallow, and the patient was in profound shock. Stab-wound of the heart was diagnosed, and she was taken at once to the operating room and etherized, about three-quarters of an hour after the injury.

*Operation* at 11.15 P.M. A quadrilateral flap, with its base at the left breast, and margins following second rib, centre of sternum, and sixth costal cartilage, was rapidly marked out and dissected back. A portion of the sixth costal cartilage was removed with bone forceps, and the fourth and fifth were cut at their sternal attachment. The third had been cut completely through by the stab-wound, close to its sternal attachment. The internal mammary vessels were ligated, and these three cartilages were again cut and broken at their junction with the ribs to make a hinge, and the flap thus formed of cartilages and intercostal muscles was carefully dissected up and turned back, the pleura being pushed away from its deep surface with gauze pads. During this dissection, a small accidental wound of the pleura occurred in the lower part of the wound. This was temporarily closed with gauze pad pressure, as time was not taken to locate and suture it. The stab-wound of the pericardium was then found to be so close to the edge of the sternum that good exposure could not be obtained until a considerable portion of the sternum had

been removed with Rongeur forceps. The pericardium was then exposed by dissecting through a blood clot in the areolar tissue of the anterior mediastinum, and freely opened by a vertical incision about 3 inches long, one inch to the left of the stab-wound and the border of the sternum. Intrapericardial tension was so great that pulsation of the heart could not be felt, even with the finger directly on the pericardium. When the incision was made, dark blood under tension escaped with a gush, and the anæsthetist noted that the pulse improved immediately and could be felt at the wrist on relief of the intrapericardial tension.

The rapidly beating heart, churning the blood free in the pericardium, made it very difficult to see where the fresh blood came from, but it soon became evident that the source was in the upper, right corner of the pericardial sac. Efforts to bring the heart wound into view failed until a transverse cut in the pericardium to the right gave more room. Then, by lifting the heart forward with the left hand and rotating it slightly to the left, a wound in the right auricle the size of a small lead pencil was brought into view. The heart was not lifted out of the pericardial sac. With each heart beat a stream of dark blood spouted about 2 or 3 inches. A suture of No. 0 chromicized catgut was passed on a curved intestinal needle, tied, and the ends left long; this helped to steady the heart while three similar interrupted stitches were added, four in all, which completely controlled the bleeding. A large clot was then removed from the pericardium near the apex. The remaining fluid blood was sponged out and the pericardial wound closed with No. 2 chromic gut, continuous suture.

The flap was then carefully sutured in place; the deep structures with No. 3 chromic, the skin with silk-worm gut and silk, the suture of the soft parts closing the wound in pleura and stopping the sucking in of air. No drainage was used. The stab-wound in the soft parts was excised before suture of flap. The patient was given a saline infusion of 1200 c.c. on the table while the operation was in progress. The time of operation was 65 minutes; total anæsthesia 68 minutes; chloroform and ether used. Her condition at the termination of operation was much better than at the beginning.

*Course.*—On admission to the ward from the operating room the patient's temperature was 99.6; pulse, 136; respirations, 56.

FIG. 2.



Suture of stab-wound of heart, (right auricle). Photograph taken 3 weeks after operation showing healed incision and scars of other stab-wounds.

At 7.15 A.M. the radial pulse was again almost imperceptible, and another infusion of 900 c.c. was given.

Temperature ranged from 100 to 102.8; pulse from 116 to 136; respirations 24 to 36 for the first six days, and there were signs of pleurisy or a low grade pneumonia in the lower left chest, but little or no cough. From the eighth to the fourteenth day the temperature ranged to 101 at night, the pulse gradually coming down to between 90 and 100, and the chest signs gradually cleared up. The wound healed by primary union throughout. The tension sutures were removed on the fifth day and all sutures on the eighth day. She was allowed out of bed on the seventeenth day, and left the hospital well on July 8, 24 days after operation, the pulse was of good quality and regular, ranging from 80 to 96; the heart sounds were normal at the time of her discharge. The signs in the lung had entirely disappeared; she had been walking about the ward for several days, and excepting that she was still weak, she seemed perfectly well, and has continued so up to the present time (Fig. 2).

DR. GEORGE E. BREWER asked Dr. Peck how he dealt with the internal mammary artery at the time. In an operation of this kind, every step must be very quickly done, and he inquired what particular means he adopted to control the hemorrhage from this artery.

DR. BLAKE said he thought there were very few, if any, stab-wounds of the auricle that had recovered; the recoveries were certainly much rarer than in wounds of the ventricle. The outlook in these cases became more serious as the thinner portions of the heart were involved, and the prognosis after auricular injuries was very grave.

DR. PECK, in closing, said the internal mammary had to be ligated above and below. The costal cartilages were cut close to the end of the sternum and turned back, so that ready access to the artery was secured. There was no particular difficulty in clamping it.

#### AVULSION OF THE BRACHIAL PLEXUS.

DR. FREDERIC KAMMERER presented a man of 30, who fell from a bicycle four months ago, striking his left shoulder on the ground. He was unconscious for a few moments, and when he recovered he immediately noticed that "he could not use his left arm and that he had no feeling in the same." This condition has

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persisted since the injury. The region of the shoulder joint was contused at the time and he also sustained a dislocation at the elbow-joint, which was reduced at a hospital to which he was taken.

An examination of the patient to-day easily allows the diagnosis of a lesion of the brachial plexus. There is a complete motor and sensory paralysis of the entire arm, with the exception of sensation in the upper inner portions of the humerus (intercostohumeral nerve). The sternomastoid, the trapezius, the serratus magnus and both the rhomboidei muscles are intact. The trunk of the sympathetic, or rather the communicating branches to the sympathetic from the ciliospinal centre in the cord are involved in the injury, as evidenced by the sinking in of the eyeball, the narrowing of the palpebral fissure, the contraction of the pupil, and the anidrosis of the face and neck on the left side. All these symptoms point to a lesion of the brachial plexus in a line running from a point above and somewhat more to the outside of the spine to a point below where the communicating branches from the cord passed off to the sympathetic trunk.

Dr. Kammerer said that a number of these cases had been published in medical literature. Dr. P. R. Bolton had presented a case at a meeting of this society six years ago. Dr. Frank Hartley, about the same time, published a case, and Dr. Bristow, in 1903, reported two further cases of his own. Surgical interference had in general proved very unsatisfactory. Still, the speaker though it justifiable to make an attempt to find and suture the divided nerves. He intends to publish the result of operative interference in this case later on.

DR. OTTO G. T. KILIANI said that in 1887 he saw a similar accident produced in a man whose arm was wrenched while he was in the act of shifting a belt on a transmission wheel. No operation was attempted in that case.

DR. BLAKE said that in the only case he ever saw similar to this the injury was received in the same way as in the case shown by Dr. Kammerer. The patient was thrown from a slowly moving freight car, striking on his shoulder and producing a rupture of the brachial plexus. Upon operation, he found the brachial plexus so imbedded in connective tissue that it would have been a hopeless task to search for the constituent parts of the nerves and suture them. It was probably not necessary, the speaker thought, to unite each individual strand with its fellow.

Dr. Blake said he believed this was the same case that was subsequently operated on by Dr. Hartley.

DR. ARTHUR L. FISK said that he showed a case of this kind to the society about five years ago. The patient was a plumber's helper, who had been struck on the left shoulder by a piece of sewer pipe falling from a height. When Dr. Fisk saw him at Trinity Hospital, some hours after the injury, he found that there was complete paralysis of the arm, and that there was no radial pulse at the wrist. The pulse in the right wrist was full and strong. Upon cutting down, avulsion of the entire brachial plexus was found and it was discovered, that the axillary artery had been torn across completely at the edge of the first rib. The plexus was sutured with fine catgut; gangrene of the extremity occurred subsequently, so that amputation at the shoulder was done.

DR. KAMMERER, in closing, said this was the first case of the kind that he had ever seen, and he thought a distinction should be made between cases of avulsion of the plexus and those of direct lesion to the plexus at a certain point. In the latter cases the prognosis seems to have been favorable. In avulsions the individual nerve trunks were generally torn away at different levels, making search for the divided ends much more difficult; often the nerves are torn away close to the spinal cord, and then there is little opportunity for surgical treatment.

#### ADENOCARCINOMA OF RECTUM.

DR. CHARLES H. PECK presented a man, 57 years of age, who was first seen early in August, 1908, complaining of severe hemorrhage from the bowels, which was first noticed about five weeks previously. There was no pain, no symptoms of obstruction, some weakness, but little loss of weight.

Proctoscopic examination showed an ulcerated growth 3 or 4 inches above the anal margin, nearly surrounding the circumference of the gut, involving about two inches of its length, but not constricting.

*Operation* was performed on Aug. 19, 1908. After the usual preparation, a median posterior incision was carried back to the sacrum, and extended forward like a Y, part way only around the anus. It was deepened to the levator ani muscles, which were divided, and the rectum freed posteriorly and laterally by blunt dissection. Median division of the sphincter posteriorly was then